

**PARAKOHLERIA, A NEW SOUTH AMERICAN GENUS
IN THE GESNERIACEAE**

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Parakohleria, consisting of over 20 species, is presently the final genus to be established for a new classification of the neotropical Gesneriaceae, to be published as the sixth volume of Selbyana. Some of the species were formerly attributed to *Kohleria* Regel or its synonym *Isoloma* Benth (= eleven species reduced to seven), others to *Diastema* Benth (three species), or to *Rhytidophyllum* Mart. (two species), to *Pearcea* Regel, to *Moussonia* Regel, and to *Kohleria* section *Moussonia*. Three new species are described below, and a large number still awaits publication after a comparison of some difficult to interpret herbarium specimens with live material in the field. The research greenhouses of the Marie Selby Botanical Gardens presently contain the following species: *Parakohleria abunda*, *P. avilana*, *P. baezana*, *P. rhodotricha*, *P. sprucei*, *P. vinicolor*, and *P. weberbaueri*.

All species of *Parakohleria* have a basally strongly bent corolla tube, a capitate stigma, and a nectary consisting of five separate glands of equal length, with the two dorsal glands often somewhat thickened. The inflorescence is typically a very hairy, congested, corymb-like, axillary cyme, and the scaly underground rhizomes, typical for the genus *Kohleria*, are usually absent or only weakly developed. The nectary in *Kohleria* is variable, but nevertheless a good sectional character. The sections *Kohleria* and *Tydaea* of *Kohleria* have five separate glands as in *Parakohleria*, but these taxa in *Kohleria* differ in the other characters just cited above from the new genus. There is a wide geographical separation between *Moussonia* (western Panama to central Mexico) and *Parakohleria* (Ecuador to Bolivia), while the species of *Kohleria* occur from central Peru to southern Mexico. It is sometimes difficult to distinguish between herbarium material of *Moussonia* and *Kohleria* without floral dissection, but the species of *Kohleria* and *Parakohleria* can be separated at first glance. Hybrids between these two genera are sterile (*P. sprucei* × *K. hirsuta*; *P. weberbaueri* × *K. spicata*; Wiehler, 1975: Table 3). The differentiating characters among *Moussonia*, *Kohleria*, and *Parakohleria* are as follows (cf. Wiehler, 1975):

Character	<i>Moussonia</i>	<i>Kohleria</i>	<i>Parakohleria</i>
rhizomes	absent	present	usually absent or only weakly developed
stigma	capitate-stomatomorphic	bilobed	capitate
nectary	evenly ring-shaped	variable, usually 2 connate, 3 separate glands	5 separate glands
corolla tube	± straight	± straight or somewhat bent at base	strongly bent at base
inflorescence	open	open	usually congested
chromosome #	<i>n</i> = 11	<i>n</i> = 13	<i>n</i> = 13

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Parakohleria Wiehler, gen. nov.

Hoc genus *Kohleriae* Regel affine, a quo combinatione characterum differt: tubus corollae basi flexus, stigma capitatum, nectarium glandulae quinque aequilongae duobus posterioribus paulo crassis, inflorescentia typice cyma dense corymbiformis, rhizomata raro evoluta vel destituta.

TYPE: *Parakohleria abunda* Wiehler

ETYMOLOGY: From the Greek *para*, by the side of, near, similar to, and the generic name *Kohleria*, in allusion to the similarity to *Kohleria*.

DISTRIBUTION: The Andes and adjacent areas from Bolivia north to Ecuador and the adjoining Colombian territories of Putumayo and Caquetá.

1. **Parakohleria abunda** Wiehler, sp. nov. (Plate 1:A)

Herba perennis terrestris; caules erecti, 30-60 cm longi, 6-9 mm in diam., dense hirsuti trichomatibus vinaceis; folia opposita-decussata, aequalia, petiolo 1-2 cm longo, hirsuto, pilis vinaceis; lamina foliorum ovata, 6-8 × 4-5 cm, acuminata, basi rotundata, crenulata, supra viridis, velutina, subtus viridis pilis vinaceis; inflorescentia cyma axillaris, floribus 4-22, pedunculo 2-4 cm longo, rufo, pilis viosis, prophyllis lanceolatis, 6-12 mm longis, viridibus, pedicellis 2-2.5 cm longis, viridibus, pilis viosis; calyx erectus viridis, hypanthii indumento rubro, lobis aequalibus, late lanceolatis, 4 × 1.5 mm, integris, supra viridis; corolla aurantiaco-rubra, in calyce obliqua, tubo 1.7-2.1 cm longo, basaliter curvato et 5 mm in diam., deinde inflato et ventricosus, 10 mm in diam., versus faucem contracto et 4 mm in diam., externe hispido pilis rubris, intus trichomatibus brevibus glanduliferis, lobis erectis parvis aequalibus, 1 × 1.5 mm; stamina 4, inclusa, filamentis 11 mm longis, hispidis, basi tubo corollae adnatis, antheris in quadratum connatis, thecis oblongis, 1 × 0.8 mm; ovarium semi-inferum, parte libera conica, 3 mm longa, sericea, stylo 9 mm longo, hispido, stigmatibus capitatis; nectarium constans ex glandulis 5, distinctis, albis, 1 mm longis, glabris, dorsalibus duobus crassioribus; fructus capsula sicca bivalvis loculicida; semina striata brunnea, ca. 0.4 mm longa et lata.

TYPE: **ECUADOR**: MORONA-SANTIAGO: Cordillera de Cutucú, western slopes, along a trail from Logroño to Yaupi, about 2°46'S, 78°06'W, wet montane forest, 1200 m alt., terrestrial herb, flowers bright red; original collection Nov. 1976, *M.T. Madison, E.O. Bush & E.W. Davis 3194* (CLONOTYPE: SEL); cultivated material of same collection at the Selby Botanical Gardens, acc. no. W-2405, 11 Dec. 1977, *H. Wiehler 77129* (HOLOTYPE: SEL; ISOTYPES: K, NY, QCA, S, US, and others to be distributed).

DISTRIBUTION: Apparently endemic to Ecuador, known only from the type collection.

The name *abunda* refers to the abundant flowers produced on each partial florescence several times a year, making this species attractive to horticulture.

2. **Parakohleria avilana** (Cuatrec.) Wiehler, comb. nov.

Kohleria avilana Cuatrec., *Anales Ci. Univ. Madrid* 4(2):256. 1935.

TYPE: *Isern 169* (HOLOTYPE: MA).

DISTRIBUTION: Ecuador: Napo.

3. *Parakohleria baezana* (Cuatrec.) Wiehler, comb. nov.

Kohleria baezana Cuatrec., Anales Ci. Univ. Madrid 4(2):257. 1935.

TYPE: *Isern 180* (HOLOTYPE: MA).

DISTRIBUTION: Ecuador: Napo.

4. *Parakohleria hispidissima* Wiehler, sp. nov.

(Plate 1:B)

Herba perennis terrestris; caules erecti 50-80 cm longi, 3-8 mm diam., dense hispidi, trichomatibus flavidis vel purpureis 5 mm longis multiseptatis; folia opposita-decussata, valde inaequalia, petiolo 1-4 cm longo, hispido; lamina foliorum lanceolata vel elliptica, acuminata, basi obliqua serrulata, herbacea, supra viridis, fere glabrata, subtus viridis vel violacea, hispida pilis flavidis vel purpureis, lamina majore 10-22 cm longa et 6-12 cm lata, lamina minore 2-5 cm longa et 1-4 cm lata; inflorescentia cyma axillaris redacta, hispida, pilis flavidis vel purpureis, floribus 4-10, pedunculo viridi, 1 cm longo, apice biprophylli, prophyllis subulatis, 4-5 mm longis, pedicellis viridibus, ad 4.5 cm longis; calyx erectus viridis, tubo 3 mm longo, lobis 5 aequalibus anguste lanceolatis ca. 5-7 mm longis et 1.5-2.0 mm latis, integris; corolla roseo-rubra, tubo intus albido rubro-maculata, in calice obliqua, 1.9-2.4 cm longa, tubo basi 3 mm diam., sursum curvato, inflato et ventricosus, 8 mm diam., versus faucem contracto et 4-6 mm diam., externe parce hispido, intus glabro, lobis 5 subaequalibus erectis, 1.5 mm longis et 2 mm latis, duobus superioribus paulo connatis; stamina 4, supra basim corollae tubi inserta deinde libera, filamentis didynamis glabris, 1.8 cm longis, antheris in quadratum connatis, thecis oblongis, 2 mm longis et 0.8 mm latis, glabris; ovarium semi-inferum, parte libera conica, 2 mm longa, pilosa, stylo 17 mm longo parce piloso, stigmate capitato; nectarium constans ex glandulis 5 distinctis luteis, 1 mm longis, glabris; fructus capsula sicca bivalvis loculicida; semina striata brunnea, 0.8 mm longa et 0.4 mm lata.

TYPE: *ECUADOR*: PASTAZA: 4 km E of Puyo on road to Veracruz, open woodland, altitude ca. 600 m, 31 July 1971, *H. Wiehler 7176* (HOLOTYPE: SEL; ISOTYPES: US, NY, K, SEL).

DISTRIBUTION: Lower montane rainforests of the eastern side of the Andes of Ecuador, at altitudes of 600-1000 m.

ADDITIONAL MATERIAL EXAMINED: *ECUADOR*: MORONA-SANTIAGO: Cordillera de Cutucú, montane rainforest (subcloudforest), 25 km SE of Logroño, altitude 1000 m, 30 Dec. 1975, *M.T. Madison & F.R. Coleman 2521* (SEL); ibidem, Río Chihuasi, altitude 800-1000 m, 16 Jan. 1976, *M.T. Madison & F.R. Coleman 2573* (SEL). These collections have conspicuous purple hairs on stems and inflorescences.

5. *Parakohleria jamesoniana* (Fritsch) Wiehler, comb. nov.

Kohleria (sect. *Moussonia*) *jamesoniana* Fritsch, Bot. Jahrb. Syst. 50: 429. 1913 ("1914").

TYPE: *Jameson 236* (HOLOTYPE: not at W, K, BM, B), but W has a collection, *Jameson s.n.*, which matches the description.

DISTRIBUTION: Ecuador: Napo.

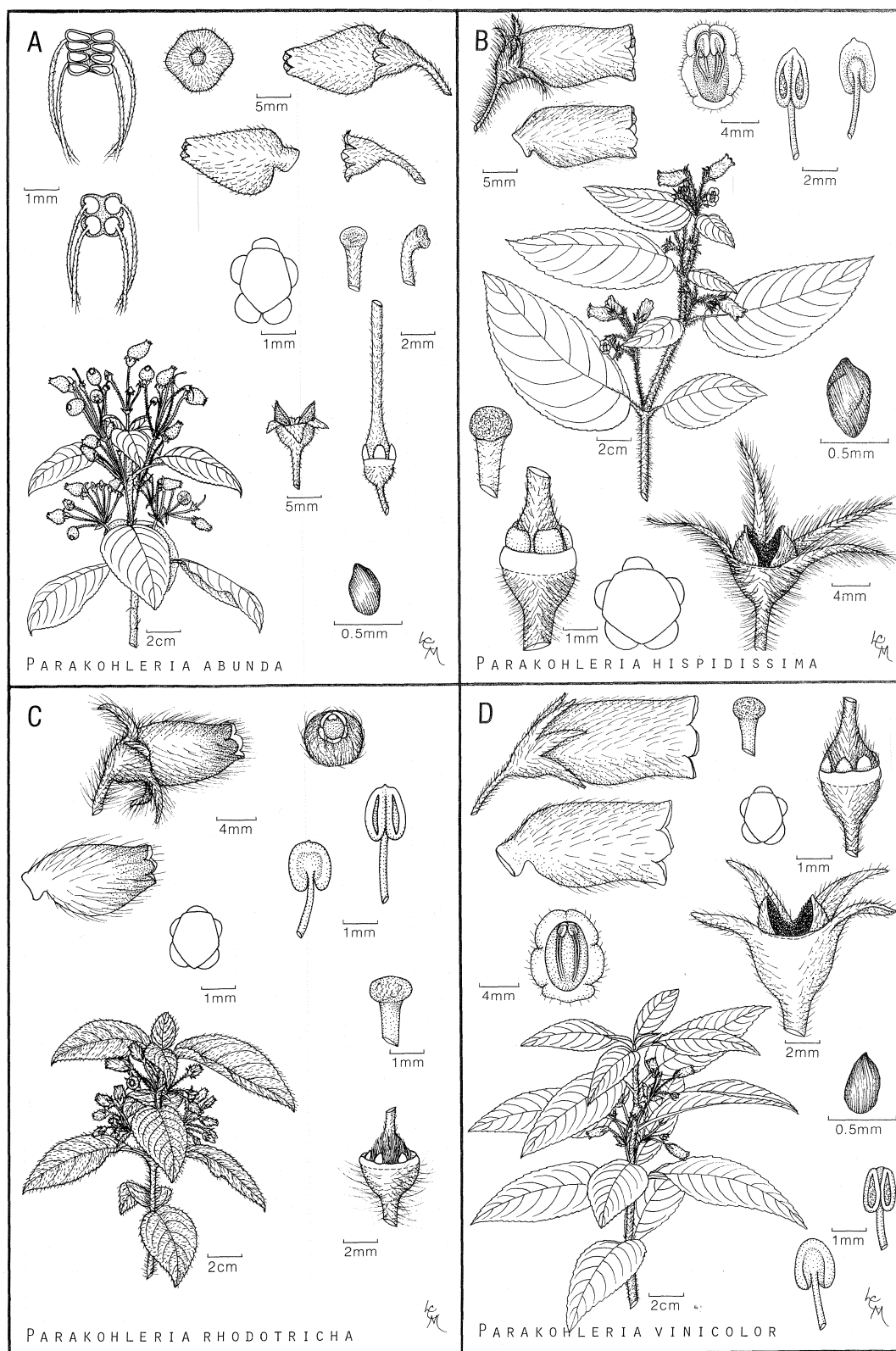


Plate 1

6. **Parakohleria melastoma** (Poeppig) Wiehler, comb. nov.
Rytidophyllum melastoma Poeppig, in Poeppig & Endlicher, Nov. Gen. & Sp. Pl. 3:7. 1845.
Moussonia melastoma (Poeppig) Hanst., Linnaea 34:288. 1865.
TYPE: *Poeppig 1239* (HOLOTYPE: supposedly at W, but not found there recently).
DISTRIBUTION: Peru: Huanuco.
7. **Parakohleria parviflora** (Rusby) Wiehler, comb. nov.
Isoloma parviflorum Rusby, Mem. Torrey Bot. Cl. 6:97. 1896.
Diastema parviflorum (Rusby) Fritsch, Bot. Jahrb. Syst. 50:406. 1913 ("1914").
TYPE: *Bang 1563a* (HOLOTYPE: NY): partly distributed as *Bang 1565* (at NY, US).
Isoloma patentipilosum Kuntze, Rev. Gen. Pl. 3(3):242. 1898.
Kohleria patentipilosa (Kuntze) K. Schumann, Just's Bot. Jahresber. 26(1):386. 1898.
TYPE: *Kuntze s.n.* (HOLOTYPE: NY).
Isoloma (?) *urticifolium* Rusby, Bull. Torrey Bot. Cl. 27:27. 1900.
Kohleria urticifolia (Rusby) Fritsch, Bot. Jahrb. Syst. 50:430. 1913 ("1914").
TYPE: *Rusby 2422* (HOLOTYPE: NY; ISOTYPES: GH, BM, K).
Isoloma flexuosum Rusby, Bull. Torrey Bot. Cl. 27:28. 1900.
TYPE: *Rusby 2424* (HOLOTYPE: NY).
Diastema galeopsis Fritsch, Bot. Jahrb. Syst. 50:405. 1913 ("1914").
TYPE: *Bang 544* (LECTOTYPE: NY; ISOTYPES: NY, US, BM, K; destroyed at B, not found at W, although cited by Fritsch).
DISTRIBUTION: Bolivia.
8. **Parakohleria purpurea** (Poeppig) Wiehler, comb. nov.
Rytidophyllum purpureum Poeppig, in Poeppig & Endlicher, Nov. Gen. & Sp. Pl. 3:6, t. 206. 1845.
Moussonia purpurea (Poeppig) Hanst., Linnaea 34:289. 1865.
TYPE: *Poeppig 1632* (HOLOTYPE: W; ISOTYPES: BM, P).
DISTRIBUTION: Peru: Huanuco.
9. **Parakohleria rhodotricha** (Cuatrec.) Wiehler, comb. nov. (Plate 1:C)
Diastema rhodotrichum Cuatrec., Anales Ci. Univ. Madrid 4(2):252. 1935.
TYPE: *Isern 496* (LECTOTYPE: MA; PARATYPES: *Isern 495, 495bis*: MA).
DISTRIBUTION: Ecuador: Napo.
10. **Parakohleria sancti-josephi** (Cuatrec.) Wiehler, comb. nov.
Kohleria sancti-josephi Cuatrec., Anales Ci. Univ. Madrid 4(2):258. 1935.
TYPE: *Isern 504* (HOLOTYPE: MA).

DISTRIBUTION: Ecuador: Napo.

11. *Parakohleria schimpfii* (Mansf.) Wiehler, comb. nov.

Pearcea schimpfii Mansf., Feddes Repert. 41:149. 1936.

TYPE: *Schimpff 704* (LECTOTYPE: GH; HOLOTYPE: destroyed at B).

DISTRIBUTION: Ecuador: Pastaza.

12. *Parakohleria sprucei* (Britton) Wiehler, comb. nov.

Isoloma sprucei Britton, Mem. Torrey Bot. Cl. 6:97. 1896. (cf. Rusby in Bull. Torrey Bot. Cl. 27:28. 1900, for choice of specific epithet; *Spruce 5841*).

Kohleria sprucei (Britton) Fritsch, Bot. Jahrb. Syst. 50:429. 1913 ("1914").

TYPE: *Bang 1541* (HOLOTYPE: NY; ISOTYPES: GH, BM, K, destroyed at B).

Kohleria (sect. *Moussonia*) *reticulata* Fritsch, Bot. Jahrb. Syst. 50:428. 1913. ("1914").

TYPE: *Spruce 5841* (HOLOTYPE: W, not found there in Dec. 1975, but cited by Fritsch; ISOTYPES: BM, K, P).

DISTRIBUTION: Bolivia, Peru, Ecuador, Colombia: Putomayo, Caquetá.

This is the most widely distributed species of the genus. There is some geographical variation, even within the Province of Pastaza, Ecuador, where I made several collections. The plants from Bolivia and Colombia have smaller flowers. A characteristic reticulate pattern of the elevated veins on the underside of the leaves helps to identify this species.

13. *Parakohleria vinicolor* Wiehler, sp. nov.

(Plate 1:D)

Herba perennis terrestris; caules humiles prostrati dein erecti, pars erecta 10-18 cm longa, ca. 3-5 mm diam., dense sericeo-strigosa, pilis flavidis 3-4 mm longis multiseptatis; folia opposita-decussata vel in parte terna, paulo inaequalis, petiolo 1-2 cm longo, longisericeo, pilis subappressis; lamina foliorum lanceolata, 9-10 cm longa, 2-3.5 cm lata, acuminata, basi fere aequaliter cuneata, serrulata, herbacea, supra aeneo-viridis subbullata villosa, pilis in venis nullis vel paucis, subtus pulchre vinicolor, pilis flavidis in costa et venis primariis obviis appressis, in superficie nulla; pedunculi brevissimi in axillis foliorum supremorum solitarii vix 3 mm longi dense sericei, 1-8-flori, apice biprophylli, prophyllis late lanceolatis, ca. 9 mm longis et 4 mm latis rubescentibus integris utrinque flavido-sericeis; pedicelli virides ca. 1.5-2.5 cm longi, dense flavido-sericei; calyx erectus viridis, tubo 4 mm longo, lobis 5 aequalibus lanceolatis ca. 5 mm longis et 2.3 mm latis, apice acuminatis, integris, utrinque flavido-villosis; corolla rubra, tubo intus lutescenti, lobis duobus inferioribus limbi rubro-maculatis, in calyce obliqua, 1.7-2.2 cm longa, tubo basi 2.2 mm diam., sursum curvato, ampliato et ventricosum, 5 mm diam., in fauce paulo contracto et 4 mm diam., externe roseo-sericeo, intus glabro, trichomatibus capitatis glanduliferis flavis praedito, limbo bilabiato parvo, lobis erectis, ca. 1.6 mm longis et 2 mm latis, duobus superioribus paulo connatis; stamina 4, supra basim corollae tubi inserta deinde libera, filamentis didynamis trichomatibus capitatis glanduliferis, 1.8 cm longis, antheris in quadratum connatis, loculis late oblongis, 1 mm longis et 0.7 mm latis, glabris; ovarium semi-inferum parte libera conica ca. 1.5 mm longa,

villosa, stylo 16 mm longo, parce puberulo trichomatibus capitatis glanduliferis, stigmatibus capitato; nectarium constans ex glandulis 5 distinctis, 0.6 mm longis, glabris; fructus capsula sicca bivalvis loculicida; semina striata brunnea, 0.7 mm longa, 0.2 mm lata.

TYPE: Cultivated material at the Selby Botanical Gardens, originally from Peru: Loreto: Prov. Coronel Portillo: Boqueron del Padre Abad (between Divisoria and Aguaytia), altitude 500 m, greenhouse accession number G-489. 20 July 1975, H. Wiehler 75266 (HOLOTYPE: SEL; ISOTYPES: to be distributed). Original collection in Peru: 30 April 1960, H.E. Moore, Jr., A. Salazar, & E.E. Smith 8387 (BH, US). The above description was made from cultivated and pickled material.

DISTRIBUTION: Peru. Only known from the type locality.

14. *Parakohleria weberbaueri* (Fritsch) Wiehler, comb. nov.

Kohleria (sect. *Moussonia*) *weberbaueri* Fritsch, Bot. Jahrb. Syst. 50: 430. 1913 ("1914").

TYPE: *Weberbauer* 2109 (HOLOTYPE: B, destroyed); I did not find any type material in Europe. Fritsch described this species at Graz from material on loan from B (cf. op. cit., pp. 392-393).

DISTRIBUTION: Peru: Junín, Cuzco.

A collection at the Selby Botanical Gardens, originally from Cornell University, with the acc. no. G-500 appears to match the original description of *P. weberbaueri* and is herewith chosen as the neotype of this species: 14 Sept. 1976, H. Wiehler 76244 (HOLO-NEOTYPE: SEL; ISO-NEOTYPES: BH, F, MO, NY, US, USM, W). The origin of this cultivated material is Peru: Cuzco: Prov. Quispicanchi: 16.6 km from Quincemil on road to San Lorenzo, 390 m alt., 11 June 1960, H.E. Moore 8584 (BH). A second collection of this species at BH is also from the same area: H.E. Moore 8576.

COMMENT

Even though *Parakohleria rhodotricha* is not a new species, it has been illustrated here because it appears to be, together with *P. abunda*, a horticulturally desirable species. Long red hairs cover the plant, and the leaves are dark bluish green. The corolla is red, with the upper part purple-black.

ACKNOWLEDGMENTS

I want to thank the curators of the herbaria cited for the permission to inspect, and for loans of the type material of the above species, including the recent loan from Madrid (MA). I also want to thank Dr. Margaret H. Stone of the L. H. Bailey Hortorium, Cornell University, for renewing the supply of live plant material of the type collection of *Parakohleria vinicolor* after the plants in the Selby collection had died.

LITERATURE CITED

Wiehler, Hans 1975. The re-establishment of *Moussonia* Regel (Gesneriaceae). Selbyana 1:22-31.